

U. S. Application No. 10/635,382
Attorney Docket No. 1999B062A
Reply to Office Action mailed March 7, 2007
Amendment/Response dated July 3, 2007

REMARKS

This reply is in response to the non-final Office Action dated March 7, 2007. Claims 1, 8-10, 13-14, 17, 28, 31-34, and 38-40 are amended. Claims 1-3, 5-6, 8-18, 20-21, and 23-40 are pending in the application; claims 17, 18, 33, 34 and 38-40 have been withdrawn from consideration as restricted to a non-elected "species"; claims 10, 14, 31 and 32 are rejected as obvious under 103 in view of WO 01/48033 (Tracey) and US 5,333,662 (Costamelle); claims 1-3, 5-6, 8-16, 20-21, 23-32 and 35-37 are further rejected as obvious under 103 in view of Costamelle, US 5,807,629 (Elspass), US 2,698,041 (Morrissey), US 2,964,489 (Baldwin) and Polymeric Materials Encyclopedia pp. 3484-3492 (PME). Further examination of the application, as amended, examination of the withdrawn claims on the merits, and reconsideration of the rejections are respectfully requested.

It is initially noted that the office action appears to erroneously treat the election of "species" requirement as a restriction requirement. See MPEP § 809.02(a). "Species I" in fact lists 10 individual members as a group, and "Species II" as 8 individual members, mirroring the Markush claims. See MPEP 803.02 for a discussion on restriction/election of species treatment of Markush claims such as these. Inasmuch as each of the claims is directed to a blend of components, none of the claims are mutually exclusive as to any particular "species". The election requirement also failed to list other secondary rubber blend components such as EPDM, which the examiner has not restricted and has already examined.

Claims 17, 18, 33-34 and 38-40 are each directed to blends and employ the transitional phrase comprising or further comprising and thus do not exclude the elected "species". Inasmuch as each these claims therefore cover or read on the provisionally elected "species", they are generic and can be examined on the merits. Further, generic and/or linking claims are allowable, and the election requirement can therefore be withdrawn. Examination on the merits of claims 17-18, 33-34 and 38-40 is respectfully requested.

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Claims 1, 13 and 28, and all other pending claims by dependency, are now restricted to inner tubes wherein the blend includes EPDM as recited in original claim 31. Claim 31 has been examined as representing a generic claim readable on the elected "species".

Claim 31 was rejected on the merits in view of Tracey, applicant's corresponding PCT publication, which was asserted to be available as prior art because there is allegedly no support in US 60/173,346 (the provisional) to establish priority. The availability of Tracey as a reference is respectfully traversed. The provisional application specifically mentions EPDM to provide support including written description under 112, first paragraph. Page 1, lines 13-15 of the provisional, lists EPDM with butyl rubbers, implicating EPDM as at least an equivalent of butyl for purposes of inner tube butyl blends. EPDM is specifically disclosed in an inner tube formulation in the Examples, see Table 1, and especially an EPDM/BIMS blend for inner tubes is specifically mentioned in the last sentence at page 7 of the provisional ("addition of EP . . . improve[s] processability . . . for both innertubes comprising the BIMS elastomer and the blended composition"). Accordingly, the EPDM/copolymer blend is entitled to the priority date and Tracey is not prior art to these claims. The Tracey/Costamelle rejection is inappropriate and can be withdrawn.

The claims are also amended to recite "a reinforcing filler" in the blend, support for which is also found in the priority application, e.g. at page 5, fifth full paragraph. This limitation is also present in the claims of applicant's earlier patent, US 6,626,219 of record. The Examiner will recall allowing the claims of the '219 patent over the same prior art references of record. The claims in the present application are similar to those in the '219 patent, but are narrower in respect of the recitation of EPDM in the blend. Full faith and credit of the earlier allowance of the claims of the '219 patent are respectfully requested. Great care should be exercised in rejecting claimed subject matter previously indicated as allowable. MPEP 706.04. This is especially so where the subject matter is claimed in an issued patent which is entitled to a presumption of validity under 35 U.S.C. § 282.

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The sole remaining prior art rejection in the office action asserts that Costemalle '662 discloses the claimed halogenated isobutylene-co-alkylstyrene polymer in tire innerliners, whereas Elspass and either Morrissey, Baldwin or PME only show that allegedly "the ordinary artisan understands that the functional requirements for a tire inner line and a tire inner tube are very similar." The office action thus considers it "to have reasonably been expected to have been understood by the ordinary artisan that both inner tubes and innerliners would benefit from improved flex and heat aging."

Applicant's invention is directed to an inner tube comprising a blend comprising butyl rubber, a halogenated isobutylene-co-alkylstyrene polymer, a second rubber component comprising EPDM, and a reinforcing filler, wherein the inner tube comprises at least 15 parts per hundred rubber of the halogenated isobutylene-co-alkylstyrene polymer, and wherein the halogen is present from 0.1 to 3.0 mol% relative to the total amount of the halogenated isobutylene-co-alkylstyrene polymer.

In contrast, none of the cited references, either alone or collectively, teach or suggest every claim limitation as required. See MPEP § 2142. Costamelle '662 discloses tire innerliners from Exxpro™ rubber, but does not mention or suggest inner tubes made from blends with another rubber component comprising EPDM and reinforcing filler. Costamelle '662 does not in any way suggest blends of as little as 15% Exxpro™ rubber with secondary rubbers comprising EPDM and reinforcing fillers can be used in inner tube formulations that will not stick to the tires in which they are used, when the secondary rubber may not work by itself as an inner tube. Elspass, for another example, is directed at tactoidal nanocomposite materials. (Col. 2, line 9). It teaches layered materials that are "swellable layered structures capable of being intercalated and having individual layer thickness Included are natural and synthetic minerals that have at least some cation exchange capacity such as smectic clay" (Col. 2, lines 32-39). Indeed, Elspass teaches away from applicant's claims in that it teaches the use of clay to produce a nanocomposite. Additionally, Costamelle and Elspass alone or together, or in view of the other references, neither teach nor suggest specific amounts of the halogenated

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isobutylene-co-paramethylstyrene polymer or the halogen present in mol% relative to the total amount of the halogenated isobutylene-co-paramethylstyrene polymer. Therefore, Applicants respectfully submit that a *prima facie* case of obviousness has not been established.

Furthermore, obvious to try or use is not the standard under 35 USC § 103. *See In re O'Farrell*, 853 F.2d 894, 903 (Fed. Cir. 1988). In this case, Costamelle alone or in view of the secondary references provides no indication of which of the myriad of choices of blend compositions, quantities, and intra-polymer properties, i.e., halogen present in mol% relative to the total amount of the halogenated isobutylene-co-paramethylstyrene polymer, selection of the blend rubber comprising EPDM, are likely to be successful in formulating reinforced inner tubes with improved heat aging properties. Indeed, it is only in light of Applicants' specification and in hindsight that one may begin to discuss Applicants' invention. *See* MPEP 2141.01 III. and 2142.

Applicants respectfully submit that the assertion of inner liner references such as Costamelle understates the difficulties associated with producing inner tubes that are suitable for articles of commerce. Indeed, heat aging resistance is but one of the many factors considered in formulating compositions for inner tubes, and this alone would not provide an artisan with the guidance regarding the halogen present in mol% relative to the total amount of the halogenated isobutylene-co-alkylstyrene polymer as claimed, the presence of EPDM in the secondary blend rubber, or the quantities to use regarding each component. For example, the co-curability of inner liners with the tire carcass is important for an inner liner, but fusion of the inner tube to the inside of the tire under extreme conditions is detrimental and is not successfully avoided with prior art inner liner compositions. See the specification at paragraphs [0003] and [0028]. Therefore, in the absence of the requisite teachings or suggestions to establish a *prima facie* case under 35 USC § 103, applicant respectfully requests that the rejection be withdrawn.

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Respectfully, applicant submits that the suitability of a rubber formulation for tire innerliners does not suggest that it will work with equal success in inner tube formulations. For example, tire innerliners and inner tubes both require low permeability to retain air, but tire innerliners are fused or molded (co-vulcanized) directly to the tire casing, whereas inner tubes are separate and must remain separable, i.e. innerliners stick to the tire whereas inner tubes must *not* stick to the tire. Therefore, adhesion of a rubber used as an innerliner is not necessarily a disadvantage, but is disastrous in the case of a tube which cannot as a result of fusing to the tire be separated from the tire for replacement or repair.

The inner tube and tire innerliner applications are markedly different in important respects, defying any reasonable expectation of successful interchangeability, let alone improved performance.

Having addressed all issues set out in the office action, Applicant respectfully submits that the pending claims are now in condition for allowance.

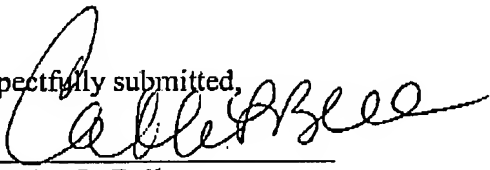
Please charge any deficiency in fees or credit any overpayments during the entire pendency of this case to Deposit Account No. 05-1712. Please also charge any petition fees, including fees for extensions of time necessary for the pendency of this case or copendency of this application with another application at any time to Deposit Account No. 05-1712.

Date

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